GLOSSARY

assay A test for a particular chemical biological agent to determine its properties or effect.

Ames test A test developed by Bruce Ames that is based on the assumption that any substance that is mutagenic (for the *Salmonella typhimurium* bacteria) may also turn out to be a carcinogen, that is, cause cancer. However, not all known chemicals that cause cancer in animal labs give a positive Ames test (and vice versa). The ease and low cost of the test make it invaluable for screening substances in our environment for possible carcinogenicity.

Best Available Technology (BAT) The best technology treatment techniques or other means that are available to remove a contaminant(s) to below the set MCL. BATs are designated by the EPA's Administrator after examination for efficacy under field conditions and not solely under laboratory conditions (taking cost into consideration).

Best Management Practice (BMP) Structural, nonstructural, and managerial techniques that are recognized to be the most effective and practical means to control non-point source pollution and are compatible with the productive use of the resource to which they are applied. BMPs are used in both urban and agricultural areas.

biofilm A structured community of microorganisms (including protozoa) enclosed in a self-produced polymeric matrix and adherent to an inert or living surface.

carcinogen Any substance that can produce cancer in an organism.

chemical oxygen demand (COD) An indirect measure of the amount of oxygen used by inorganic and organic matter in water.

chloramines Compounds formed by the reaction of aqueous chlorine (or hypochlorous acid) with ammonia.

chlorine-contact chamber That part of a water treatment plant where chlorine is applied to water for disinfection purposes.

chlorine demand The amount of chlorine that must be applied to water before free chlorine can be detected. Chlorine demand is the difference between the amount of chlorine added to water and the amount of residual chlorine remaining after a given contact time. Chlorine demand varies with dosage, time, temperature, pH, and nature and amount of the impurities in the water.

chronic Occurring over a long period of time, either continuously or intermittently; used to describe ongoing exposures and effects that develop only after a long exposure.

chronic exposure Long-term, low-level exposure to a toxic chemical.

clarifier A large circular or rectangular tank or basin in which water is held for a period of time, during which the heavier suspended solids settle to the bottom. Clarifiers are also called settling basins and sedimentation basins.

clear well A reservoir for the storage of filtered water of sufficient capacity to prevent the need to vary the filtration rate with variations in demand.

coagulants Chemicals that cause very fine particles to clump together into larger particles. These chemicals help (by changing the particles' surface charge and destabilizing them) in separating the solids from the water by settling, skimming, draining, or filtering.

coagulation The process of clumping together of colloids and fine particles into larger particles caused by the use of chemicals (coagulants). This clumping together makes it easier to separate the solids from the water by settling, skimming, draining, or filtering.

coliform A group of bacteria found in the intestines of warm-blooded animals (including humans) and also found in plants, soil, air, and water. Coliforms are gas-producing bacteria. Fecal coliforms are a specific class of bacteria which only inhibit the intestines of warm-blooded animals. The presence of coliform is an indication that the water is polluted and may contain pathogenic organisms.

colloids Very small, finely divided solids (particles that do not dissolve) that remain dispersed in a liquid for a long time due to their large surface area-to-volume ratio and electrical charge. When most of the particles in water have a negative electrical charge, they tend to repel each other. This repulsion prevents the particles from clumping together, becoming heavier, and settling out.

combined available residual chlorine The concentration of residual chlorine which is combined with ammonia (NH3) and/or organic nitrogen in water, such as chloramine (or another chloro-derivative), yet is still available to oxidize organic matter and has bactericidal properties.

combined residual chlorination The application of chlorine to water to produce combined available residual chlorine. This residual can be made up of monochloramines, dichloramines, and nitrogen trichloride.

combined sewer A sewer that transports surface runoff, human domestic wastes (sewage), and sometimes industrial wastes. Wastewater and runoff in a combined sewer may occur in excess of the sewer capacity and cannot be treated immediately. The excess is frequently discharged directly to a receiving stream without treatment or to a holding basin for subsequent treatment and disposal.

composite (proportional) samples A composite sample is a collection of individual samples obtained at regular intervals, usually every one or two hours during a 24-hour time span. Each individual sample is combined with the others in proportion to the rate of flow when the sample was collected The resulting mixture (composite sample) forms a representative sample and is analyzed to determine the average conditions during the sampling period.

compound A substance composed of two or more elements whose composition is constant. For example, table salt (sodium chloride–NACl) is a compound.

contaminant Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.

contamination The introduction into water of microorganisms, chemicals, toxic substances, wastes, or wastewater in a concentration that makes the water unfit for its next intended use.

continuous sample A flow of water from a particular place in a plant to the location where samples are collected for testing. This continuous stream may be used to obtain grab or composite samples. Frequently, several taps (faucets) will flow continuously in the laboratory to provide test samples from various places in a water treatment plant.

conventional filtration A method of treating water to remove substantial amounts of particulates, biological and chemical contaminants. The method consists of a series of processes including the addition of coagulant chemicals, flash mixing, coagulation, flocculation, sedimentation, and filtration.

corrosion The gradual decomposition or destruction of a material by chemical action, often due to an electrochemical reaction. Corrosion may be caused by 1) stray current electrolysis, 2) galvanic corro-

sion caused by dissimilar metals, or 3) differential concentration cells. Corrosion starts at the surface of a material and moves inward.

corrosive A chemical (water or otherwise) that reacts with the surface of a material (pipe), causing it to deteriorate, decompose, or wear away.

corrosivity An indication of the corrosiveness of water (or other chemical). The corrosiveness of a water is described by the water's pH, alkalinity, hardness, temperature, total dissolved solids, dissolved oxygen concentration, and the Langelier Index.

CT or CTcalc The product of "residual disinfectant concentration" (C) in mg/L determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" × "T".

curie A measure of radioactivity. One curie of radioactivity is equivalent to 3.7×10^{10} or 37,000,000,000 nuclear disintegrations per second.

decomposition The conversion of materials to more stable forms by chemical or biological action.

diatomaceous earth A fine, siliceous (made of silica) "earth" composed mainly of the skeletal remains of diatoms, a type of free-floating, microscopic plant found in the ocean.

diatomaceous earth filtration A filtration method resulting in substantial particulate removal that uses a process in which 1) a "precoat" cake of diatomaceous earth filter media is deposited on a support membrane (septum), and 2) while the water is filtered by passing through the cake on the septum, additional filter media, known as "body feed," are continuously added to the feed water to maintain the permeability of the filter cake.

direct filtration A filtration method of treating water which consists of the addition of coagulant chemicals, flash mixing, coagulation, minimal flocculation, and filtration. The flocculation facilities may be omitted, but the physical-chemical reactions will occur to some extent. Compared to conventional treatment, the sedimentation process is omitted from the treatment train. Also see *conventional filtration* and *in-line filtration*.

disinfectant Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone, that is added to water in any part of the treatment or distribution process and is intended to kill or inactivate pathogenic microorganisms.

disinfectant contact time The time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration (C) is measured. When only one C is measured, T is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where residual disinfectant concentration (C) is measured. Disinfectant contact time in pipelines must be calculated based on plug flow by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

disinfection The process designed to kill most microorganisms in water, including essentially all pathogenic (disease-causing) bacteria. There are several chemical and physical ways to disinfect, with chlorine being the chemical most frequently used for disinfection in water treatment. Of the physical disinfection methods, UV is the most frequently used method.

disinfection by-product A compound formed by the reaction of a disinfectant such as chlorine with organic material in the water supply.

dissolved oxygen (DO) Measure of water quality indicating free oxygen dissolved in water.

enhanced coagulation To more effectively control TOC and DBP.

epidemiologic study Study of human populations to identify causes of disease. Such studies often compare the health status of a group of persons who have been exposed to a suspect agent with that of a comparable non-exposed group.

epidemiology A branch of medicine which studies epidemics (diseases which affect significant numbers of people during the same time period in the same locality). The objective of epidemiology is to determine the factors that cause epidemic diseases and how to prevent them.

fecal coliform bacteria Bacteria found in the intestinal tracts of animals. Their presence in water or sludge is an indicator of pollution and possible contamination by pathogens.

filtration A process for removing particulate matter, microorganisms, and some chemical contaminants from water by passage through porous media.

finished water Water that has passed through a water treatment plant; all the treatment processes are completed or "finished."

floc Clumps of microorganisms and particulate impurities that have come together and formed a cluster; found in flocculation tanks and settling or sedimentation basins.

flocculation The gathering together of particles and microorganisms in water to form larger particles by gentle mixing after the addition of coagulant chemicals.

flushing A method used to clean water distribution lines. In this method, hydrants are opened and water is pumped at a high velocity through the pipes to remove deposits from the pipes that flow out the hydrants.

free available residual chlorine That portion of the total available residual chlorine composed of dissolved chlorine gas Cl_2 hypochlorous acid (HOCl) and/or hypochlorite ion (OCl^-) remaining in water after chlorination. This does not include chlorine that has combined with ammonia, nitrogen, or other compounds.

free residual chlorination The application of chlorine to water to produce a free available chlorine residual equal to at least 80% of the total residual chlorine (sum of free and combined available chlorine residual).

garnet A group of hard, reddish, glassy, mineral sands made up of silicates of base metals (calcium, magnesium, iron, and manganese). Garnet has a higher density than sand.

gastroenteritis An inflammation of the stomach and intestine resulting in diarrhea, with vomiting and cramps when irritation is excessive. When caused by an infectious agent, it is often associated with fever.

germicide A substance formulated (or a physical method designed) to kill germs or microorganisms such as chlorine and UV.

Giardia lamblia Flagellate protozoan which is shed during its cyst stage into the feces of man and animals. When water containing these cysts is ingested, the protozoan causes a severe gastrointestinal disease called giardiasis.

giardiasis Intestinal disease caused by an infestation of *Giardia* with symptoms that include abdominal pains and explosive diarrhea.

ground water The supply of fresh water found beneath the Earth's surface, usually in aquifers.

ground water under the direct influence (UDI) of surface water Any water beneath the surface of the ground with 1) significant occurrence of insects or other macroorganisms such as algae, or large-diameter pathogens such as *Giardia lamblia*, or 2) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the State. The State determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

gross alpha particle activity The total radioactivity due to alpha particle emission inferred from measurements on a dry sample.

gross beta particle activity The total radioactivity due to beta particle emission inferred from measurements on a dry sample.

hardness, water A characteristic of water caused mainly by the salts of calcium and magnesium, such as bicarbonate, carbonate, sulfate, chloride, and nitrate. Excessive hardness in water is undesirable because it causes the formation of soap curds, increased use of soap, and deposition of scale in boilers and pipes. Hardness also may cause damage in some industrial processes and sometimes causes objectionable tastes in drinking water.

herbicide A compound, usually a man-made organic chemical, used to kill or control undesired plant growth.

heterotrophic microorganisms Bacteria and other microorganisms that use organic matter as an energy source.

heterotrophic plate count (HPC) The number of colonies of heterotrophic bacteria grown on selected solid media at a given temperature and incubation period, usually expressed in number of bacteria per milliliter of sample.

humus Organic portion of the soil remaining after prolonged microbial decomposition.

hydrophilic Having a strong affinity (liking) for water; the opposite of hydrophobic.

hypochlorite Chemical compounds containing available chlorine; used for disinfection available as liquids (bleach) or solids (powder, granules, and pellets).

insecticide Any substance or chemical formulated to kill or control insects.

in vitro In glass; a laboratory experiment performed in a test tube or other vessel.

in vitro studies Studies of chemical effects conducted in tissues, cells, or subcellular extracts from an organism (i.e., not in the living organism).

in vivo Within a living organism; a laboratory experiment performed in which the substance under study is inserted into a living organism.

in vivo studies Studies of chemical effects conducted in intact living organisms.

ion An electrically charged atom, radical (such as SO_4^{-2}), or molecule formed by the loss or gain of one or more electrons.

ionic concentration The concentration of any ion in solution, usually expressed in moles per liter.

ionization The splitting or dissociation (separation) of molecules into negatively and positively charged ions.

jar test A laboratory procedure that simulates a water treatment plant's coagulation/flocculation units with differing chemical doses plus energy of rapid mix, energy of slow mix, and settling time. The purpose of this procedure is to estimate the minimum or ideal coagulant dose required to achieve certain water quality goals. Samples of water to be treated are commonly placed in six jars. Various amounts of chemicals are added to each jar, and the settling of solids is observed. The dose of chemicals that provides satisfactory settling removal of turbidity and/or color is the dose used to treat the water being taken into the plant at that time.

Langelier Index (L.I.) An index reflecting the equilibrium pH of a water with respect to calcium and alkalinity. This index is used in stabilizing water to control both corrosion and the deposition of scale. Langelier Index = pH – pHs, where pH = actual pH of the water and pHs = pH at which the water having the same alkalinity and calcium content is just saturated with calcium carbonate.

legionella A genus of bacteria, some species of which cause a type of pneumonia called Legionnaires Disease.

maximum contaminant level (MCL) The maximum permissible level of a contaminant in water which is delivered to the free-flowing outlet of the ultimate user of a public water system, except in the case of turbidity, where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user are excluded from this definition, except those contaminants (such as lead and copper) resulting from the corrosion of piping and plumbing caused by water quality.

maximum contaminant level goal (MCLG) The maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur and which allows an adequate margin of safety. Maximum contaminant level goals are non-enforceable limits.

maximum total trihalomethane potential (MTTP) The maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at 25°C or above.

microbial growth The activity and growth of microorganisms such as bacteria, algae, diatoms, plankton, and fungi.

microgram (g) One-millionth of a gram (3.5×10^{-8} oz. 0.000000035 oz.).

micrograms per liter (µg/L) One microgram of a substance dissolved in each liter of water. This unit is equal to parts per billion (ppb), since one liter of water is equal in weight to one billion micrograms.

micron A unit of length; one millionth of a meter or one thousandth of a millimeter. One micron equals 0.00004 of an inch.

microorganisms Living organisms that can be seen individually only with the aid of a microscope.

milligrams per liter (mg/L) A measure of concentration of a dissolved substance. A concentration of one mg/L means that one milligram of a substance is dissolved in each liter of water. For practical purposes, this unit is equal to parts per million (ppm), since one liter of water is equal in weight to one million milligrams. Also see *parts per million*.

most probable number (MPN) MPN is the most probable number of coliform-group organisms per unit volume of sample water; expressed as the number of organisms per 100 mL of sample water.

mutagen An agent that causes a permanent genetic change in a cell other than that which occurs during normal genetic recombination (e.g., mutagen MX).

mutagenicity The capacity of a chemical or physical agent to cause permanent alteration of the genetic material within living cells.

National Pollutant Discharge Elimination System (NPDES) A system where the regulatory agency (either federal or state) issues a document (permit) which is designed to control all discharges of pollutants from point sources in U.S. waterways. NPDES permits regulate discharges into navigable waters from all point sources of pollution including industries, municipal treatment plants, large agricultural feed lots, and return irrigation flows.

nephelometric A means of measuring turbidity in a sample by using an instrument called a nephelometer. A nephelometer passes light through a sample, and the amount of light deflected (usually at a 90° angle) is then measured.

nephelometric turbidity unit (NTU) The unit of measure for turbidity.

non-point source Pollution sources which are diffuse and do not have a single point of origin or are not introduced into a receiving stream or the environment from a specific outlet. The pollutants are generally carried off the land by stormwater runoff. The commonly used categories for non-point sources are agriculture, forestry, urban, mining, construction, land disposal, and saltwater intrusion.

non-potable Water that may contain objectionable pollution, contamination, minerals, or infective agents and is considered unsafe and/or unpalatable for drinking.

oncology Study of cancer.

oxic polymerization Polymerization of the organic compounds in an oxic environment.

particle count The results of a microscopic examination of treated water with a special "particle counter" which classifies suspended particles by number and size.

particulate A very small solid suspended in water which can vary widely in size, shape, density, and electrical charge.

parts per million (PPM) Parts per million parts, a measurement of concentration on a weight or volume basis. This term is equivalent to milligrams per liter (mg/L), which is the preferred term.

pathogenic organisms Organisms, including bacteria, viruses, protozoa, or cysts, capable of causing diseases (typhoid, cholera, dysentery) in a host (such as a person, plant, or animal). There are many types of organisms which do NOT cause disease, such as the bacteria used to process milk into cheese. These organisms are called non-pathogenic.

pathogens Microorganisms that can cause disease in other organisms or in humans, animals, and plants. They may be bacteria, viruses, or parasites and are found in sewage runoff from animal farms or rural areas populated with domestic and/or wild animals and in water used for swimming. Fish and shellfish contaminated by pathogens, or the contaminated water itself, can cause serious illnesses.

pathology The study of disease.

pesticide Any substance or chemical designed or formulated to kill or control undesired plants, insects, or animals. Pesticides include algicide, herbicide, insecticide, and rodenticide.

pico A prefix used in the metric system and other scientific systems of measurement which means 10^{-12} or 0.000000000001.

picocurie (pCi) A measure of radioactivity. One picocurie of radioactivity is equivalent to 0.037 nuclear disintegrations per second or about two disintegrations per minute.

point of disinfectant application The point where disinfectant is applied. Water downstream of that point is not subject to recontamination by surface water runoff.

point-of-entry treatment device A treatment device applied to the drinking water entering a house or building for the purpose of treating the drinking water distributed throughout the house or building.

point-of-use treatment device A treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that individual tap.

point source A stationery location or fixed facility from which pollutants are discharged or emitted; also, any single identifiable source of pollution (e.g., pipe, ditch, ship, ore pit, factory smokestack).

pollutant Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

pollution Generally, the presence of matter or energy whose nature, location, or quantity produces undesired environmental effects. Under the Clean Water Act, for example, the term is defined as the man-made or man-induced alteration of the physical, biological, and radiological integrity of water.

polymer A chemical formed by the union of many monomers (a molecule of low molecular weight). Polymers are used with other chemical coagulants to aid in binding small suspended particles to form larger and heavier aggregates than individual particles for their removal from water. All polyelectrolytes are polymers, but not all polymers are polyelectrolytes.

prechlorination The addition of chlorine at the headworks of the plant prior to other treatment processes, mainly for control of tastes, odors, and aquatic growths; also applied to aid in coagulation and settling.

precipitation 1) The process by which atmospheric moisture falls onto a land or water surface as rain, snow, hail, or other forms of moisture, and 2) the chemical transformation of a substance in solution into an insoluble form (precipitate).

precursor Natural organic compounds found in all surface and groundwaters. These compounds may react with halogens (such as chlorine) to form trihalomethanes (THMs) or other disinfectants to form disinfection by-products.

primacy The responsibility for ensuring that a law is implemented, and the authority to enforce a law and related regulations. A primacy agency has the primary responsibility for administrating and enforcing regulations.

public water system A system for the provision of piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals at least 60 days out of the year. Such term includes 1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and 2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "community water system" or a "non-community water system."

radionuclide Any man-made or natural element which emits radiation in the form of alpha or beta particles or as gamma rays.

raw water Water in its natural state, prior to any treatment, or the water entering the first treatment process of a water treatment plant.

reaeration The introduction of air through forced air diffusers into the water. Oxygen from the air dissolves into the water and replenishes the dissolved oxygen.

residual chlorine The amount of free and/or available chlorine remaining after a given contact time under specified conditions.

reverse osmosis The application of pressure to a concentrated solution which causes the passage of a liquid from the concentrated solution to a weaker solution across a semipermeable membrane. The membrane allows the passage of the solvent (water), but not the dissolved solids (solutes). The liquid produced is a demineralized water.

Safe Drinking Water Act (SDWA) Commonly referred to as SDWA, an Act passed by the U.S. Congress in 1974. The Act establishes a cooperative program among local, state, and federal agencies to insure safe drinking water for consumers.

safe water Water that does not contain harmful bacteria, toxic materials, or chemicals. Water may have taste and odor problems, color, and certain mineral problems and still be considered safe for drinking.

sanitary sewer A sewer that transports only wastewaters (from domestic residences and/or industries) to a wastewater treatment plant.

Standard Methods Standard Methods for the Examination of Water and Wastewater is a joint publication of the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation which outlines the procedures used to analyze the impurities in water and wastewater.

suspended solids 1) Solids that either float on the surface or are suspended in water or other liquid and which are largely removable by laboratory filtering, and 2) the quantity of material removed from water in a laboratory test, as prescribed in Standard Methods for the Examination of Water and Wastewater.

teratogenesis The induction of nonhereditary congenital malformations (birth defects) in a developing fetus by exogenous factors acting in the womb; interference with normal embryonic development.

teratogenicity The capacity of a physical or chemical agent to cause teratogenesis in offspring.

total dissolved solids (TDS) All of the dissolved solids in a water. TDS is measured on a sample of water that has passed through a very fine mesh filter to remove suspended solids. The water passing through the filter is evaporated, and the residue represents the dissolved solids.

total residual chlorine The amount of available chlorine remaining after a given contact time, which is the sum of the combined available residual chlorine and the free available residual chlorine.

total trihalomethanes (TTHMs) The sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane, and tribromomethane [bromoform]), rounded to two significant figures.

toxic A substance which is poisonous to an organism.

toxic pollutants Materials contaminating the environment that cause death, disease, birth defects in organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely.

toxic substance A chemical or mixture that may represent an unreasonable risk of injury to health or the environment.

toxicant A harmful substance or agent that may injure an exposed organism.

toxicity The quality or degree of being poisonous or harmful to plant, animal, or human life.

toxicology The science and study of poisons and their effects and control.

trihalomethane (THM) One of a family of organic compounds named as derivatives of methane. THMs are generally the by-product from chlorination of drinking water that contains organic material. The resulting compounds (THMs) are suspected of causing cancer.

turbidity The cloudy appearance of water caused by the presence of suspended and colloidal matter. In the waterworks field, a turbidity measurement is used to indicate the clarity of water. Technically, turbidity is an optical property of the water based on the amount of light reflected by suspended particles. Turbidity cannot be directly equated to suspended solids because white particles reflect more light than dark-colored particles, and many small particles will reflect more light than an equivalent large particle.

virus The smallest form of microorganism capable of causing disease, especially, a virus of fecal origin that is infectious to humans by waterborne transmission.

waterborne disease outbreak The significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system that is deficient in treatment or because of a cross connection (e.g., illegal connection of a sewer line to the water supply network) as determined by the appropriate local or state agency.

water supply system The collection, treatment, storage, and distribution of safe water from source to consumer.

watershed The land area that drains into a stream; an area of land that contributes runoff to one specific delivery point. Large watersheds may be composed of several smaller "subsheds," each of which contributes runoff to different locations that ultimately combine at a common delivery point.

wetlands Any number of tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that form an interface between terrestrial (land-based) and aquatic environments. They include freshwater marshes around ponds and channels (rivers and streams) and brackish and salt marshes. Other common names include *swamps* and *bogs*.

zeta potential In coagulation and flocculation procedures, the difference in the electrical charge between the dense layer of ions surrounding the particle and the charge of the bulk of the suspended fluid surrounding this particle. The zeta potential is usually measured in millivolts.